

a second dielectric material having a second dielectric constant different from the first dielectric constant,  
the first and second dielectric materials being scalable for a set of feature size technologies, the set of feature size technologies defined by a gate length in the range of 25-150nm, and wherein the first material thickness and the second material thickness are determined by the relationship

$$t_1/k_1 + t_2/k_2 = t_{ox}/k_{ox}$$

wherein  $t_1$  is the first material thickness,  
 $t_2$  is the second material thickness,  
 $t_{ox}$  is the minimum thickness for a gate dielectric of silicon dioxide for a chosen gate length,  
 $k_1$  is the dielectric constant for the first dielectric material,  
 $k_2$  is the dielectric constant for the second dielectric material, and  
 $k_{ox}$  is the dielectric constant of silicon dioxide.

15. (Four Times Amended) An apparatus comprising:

a semiconductor substrate having a transistor device formed thereon, the transistor device having a gate dielectric disposed directly between a surface of the substrate and a gate electrode comprising:

a first dielectric material having a first dielectric constant; and  
a second dielectric material having a second dielectric constant different from the first dielectric constant,

the first and second dielectric materials being scalable for each of a plurality of feature size technologies, having a gate length in the range of 25-150nm, and

wherein the first material thickness and the second material thickness are determined by the relationship

12

$$t_1/k_1 + t_2/k_2 = t_{ox}/k_{ox}$$

13

wherein

 $t_1$  is the first material thickness,

14

 $t_2$  is the second material thickness,

15

 $t_{ox}$  is the minimum thickness for a gate dielectric of silicon dioxide for a

16

chosen gate length,

17

 $k_1$  is the dielectric constant for the first dielectric material,

18

 $k_2$  is the dielectric constant for the second dielectric material, and

19

 $k_{ox}$  is the dielectric constant of silicon dioxide.